REMARKS

In the Final Office Action mailed February 12, 2003, the Examiner has indicated that the Affidavit filed under 37 CFR §1.131 is insufficient to overcome the rejection of claims 1-17.

In antedating the reference by Jin et al., the Examiner states that the affidavit failed to show reasonable diligence toward reduction to practice. Due to an inadvertent typographically error, the affidavit erroneously states that "[p]rior to December 23, 1977, I co-authored a description of the invention". The date should, however, have been December 23, **1997** (the effective date of Jin et al.), and not December 23, **1977**. Ostensibly, the Examiner concludes a lack of diligence due to this typographically error. A new declaration is submitted herewith correcting the above error. Also, the declaration is now made by all of the co-inventors of the subject invention, who are also all co-authors of the document entitled "Methods and Apparatuses to Implement Desensitization for a Direct Sequence Spread Spectrum CDMA Receiver."

As set forth in the new declaration, a description of the invention was made in the document entitled "Methods and Apparatuses to Implement Desensitization for Direct Sequence Spread Spectrum CDMA Receiver" prior to **December 23, 1997.** Decl., ¶2 From that time and up to the filing of the application on **June 19, 1998**, (a period of less than 6 months), the inventors submitted their invention to in-house counsel for patentability consideration, and then worked with him in reviewing draft versions of the patent application, which establishes diligence.

The Examiner has also indicated that the evidence fails to provide "dynamically adjusting the power level of the desensitization signal based on the changing operating parameters

of the wireless communication system. Applicants have amended independent claims 1 and 11 to more clearly show that the documentary evidence supports the claim language. As amended, claims 1 and 11 recite "adjusting the power level of the desensitization signal based on the operating parameters of the wireless communication system."

Attached hereto is a marked-up version of the changes made to the claims. The attached page is captioned "Version With Markings To Show Changes Made."

Applicants wish to point out to the Examiner that the document entitled "Method and Apparatuses to Implement Desensitization for a Direct Sequence Spread Spectrum CDMA Receiver" states that the "variable attenuator provides the ability to adjust the amount of noise power to be injected into the receive path thus providing different levels of desenitization." Exhibit A-1, ¶3. As such, it should be clear the adjustable attenuator adjusts the power level of the desensitization signal.

That the power level is adjusted on the basis of the operating parameters of the wireless communication system is clear from the following passage of the document entitled "Methods and Apparatuses to Implement Desensitization for a Direct Sequence Spread Spectrum CDMA Receiver:"

> In cellular applications, reduced sensitivity may be desired of a CDMA receiver in applications where the coverage area is small or the coverage area is embedded within a larger cell. In these applications, the receiver does not need the high sensitivity due to the lower forward link power transmitted by the cell. With lower transmitted, the receiver needs to be desensitized to balance the link between forward and reverse paths. Desensitization is also important for handoff situations between small desensitized cells and other large cells. The receiver of both cells in handoff need to have their sensitivities balanced at the handoff boundary. If

> the smaller cell had greater sensitivity than the larger cell, the mobile unit will transmit a low level of power to satisfy the small cell but the power level will insufficient to reach the large cell. This most critical at the handoff boundary. It is therefore, necessary to desensitize the small cell so that the mobile transmitted power level at the handoff boundary is sufficiently high to both the small cell as well as to the large cell. Exhibit A-1, ¶1

The above text clearly indicates that the desensitization signal level is adjusted depending on the parameters of the wireless communication system, e.g., where the coverage area is small or the coverage area is embedded within a larger cell.

In view of the amendments, applicants' submitted declaration, evidentiary exhibits and the remarks above, it is believed that claims 1-17 are allowable. Since this application is believed to be in condition for allowance, reconsideration and allowance are respectfully solicited.

Respectfully Submitted,
Attorney For Applicants

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims:

1. (Four Times Amended) In a wireless communication system, a method of receiving a received signal on a receive path of a receiver, said method comprising the step of:

injecting a desensitization signal into said receive path to raise the noise level of said receive path relative to the level of said received signal without attenuating the received signal on said receive path so as to desensitize the receiver; and

[dynamically] adjusting the power level of the desensitization signal based on the [changing system] operating parameters of the wireless communication system.

11. (Four Times Amended) In a wireless communication system, a receiver having a receive path for receiving a received signal, said receiver comprising:

a desensitization signal source that is capable of producing a desensitization signal on a desensitization signal path;

a coupler connected to said desensitization signal path and said receive path and injects said desensitization signal into said receive path to raise the noise level on said receive path relative to the level of said received signal without attenuating the received signal on said receive path so as to desensitize the receiver; and

means for [dynamically] adjusting the power level of the desensitization signal based on the [changing system] operating parameters of the wireless communication system.

Exhibit B

SUBMISSION NO. : 113 113850

ATTORNEY : Garceran, Julio A.

Title :
Methods And Apparatus To Implement Desensitization For A Direct Sequence Spread CDMA Receiver

-------------------MAIN INFORMATION--------------------

ITEM STATUS	: Opened	AT&T RATING	:
STATUS DATE	: [redacted]	NON AT&T RATING	:
OPEN DATE	:	PATENT WPN	: U0
CLOSE DATE	:	GOVT. CONTRACT	: No
DEADLINE DATE	:	TYPE	: Patentability
BU CODE(S)	: NSWLS	DEFENSIVE	: No

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Brief Description :

No data in this field

Exhibit A

Methods and Apparatuses to Implement Desensitization for a Direct Sequence Spread Spectrum CDMA Receiver

Michael E. Burke	x63929	WH 8E-011
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The inventions, shown in the attached figure, are methods to implement desensitization of a spread spectrum CDMA receiver. In cellular applications, reduced sensitivity may be desired of a CDMA receiver in applications where the coverage area is small or the coverage area is embedded within a larger cell. In these applications, the receiver does not need the high sensitivity due to the lower forward link power transmitted by the cell. With lower transmitted power, the receiver needs to be desensitized to balance the link between forward and reverse paths. Desensitization is also important for handoff situations between small desensitized cells and other large cells. The receivers of both cells in handoff need to have their sensitivities balanced at the handoff boundary. If the smaller cell had greater sensitivity than the larger cell, the mobile unit will transmit a low level of power to satisfy the small cell but the power level will be insufficient to reach the large cell. This is most critical at the handoff boundary. It is therefore, necessary to desensitize the small cell so that the mobile transmitted power level at the handoff boundary is sufficiently high to both the small cell as well as to the large cell.

The means to implement desensitization in prior art (Figure 1) is to insert an attenuator or other lossy device prior to the input of the low noise amplifier (LNA) of a receiver. The attenuator can be an adjustable unit to provide variable desensitization levels. However, the disadvantage with this implementation is that variable attenuators still incur a small loss even at the "zero" loss setting of the attenuators. This small loss can be as much as a few dB and may sometimes be a significant contributor to the overall noise figure of the receiver. Therefore, in order to circumvent this dilemma, the inventions focuses on implementations after the LNA for the very minimal and negligible contribution to the overall receiver noise figure. Another significant advantage of the inventions is that a coupler is the only device used in the line of the receive path. The very low insertion loss (0.5 dB) of the coupler after the LNA has essentially no contribution to the overall noise figure. Other devices can be used such as power combiners. However, they incur greater loss and thus have greater contribution to the overall noise figure.

The first implementation consist of utilizing a broadband noise source such as a noise diode to inject into the receive path as shown in Figure 2. The variable attenuator provides the ability to adjust the amount of noise power to be injected into the receive path thus providing different levels of desensitization. However, the amount of noise power must be equal to or greater than the cumulative gain of the components preceding the coupler before any desensitization can be realized. This implementation has the same effect as the prior art but instead of attenuating the signal down to the noise, it brings the noise up to the signal.

In Figure 3, the method is the same as the first implementation but instead of a noise source, it uses a CW signal source for desensitization. Again, the amount of signal being injected into the receive path will provide a

corresponding amount of desensitization. This is possible only for spread spectrum systems because of their inherent property to frequency spread interferers while the system is despreading its desired spread spectrum signal. In this case, the CW source appear like an interferer to the spread spectrum system. When the interferer is spread, the resulting signal appears to be like noise in the presence of the desired despread signal. The higher the interfering CW signal power, the higher its spreaded "noise" power. With this effect, varying levels of desensitization can be realized by adjusting the injected CW signal level.

The third method is the same as the second method, however, the CW source is modulated to provide a wider bandwidth interference signal compared to the narrow CW signal. Means to implement the modulator can be a I/Q modulator, mixer, or a variable attenuator as shown in Figure 4, 5, and 6 respectively. The types of modulation can be AM, FM, PM, noise or any other form of modulation of the frequency source including combinations of the aforementioned types. Additionally, noise type modulation can also be implemented by using digital pseudo-random sequences. As described previously, the modulated signal will appear to be like an interferer and will go through the same process of being despread and appearing like "noise". Similarly, the amount of desensitization will be proportional to the amount of injected power of the modulated source. A wider bandwidth desensitization signal may be desired in certain applications where narrow bandwidth signals may pose a problem for devices making RSSI measurements.

Although the figures show implementations at the RF stage, all of the above methods can also be implemented at the IF or baseband stages. Particularly for baseband implementations, that is, after digitization of the I/Q signal, noise desensitization can be implemented by means of summing together a digital pseudo-random sequences with the digitized I/Q signal.

Figure 4
I/Q Modulated Signal Injection

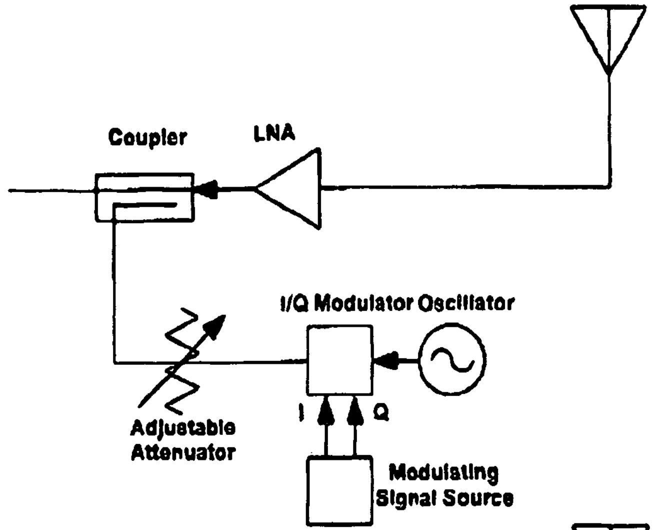

Figure 5
Mixer Modulated Signal Injection

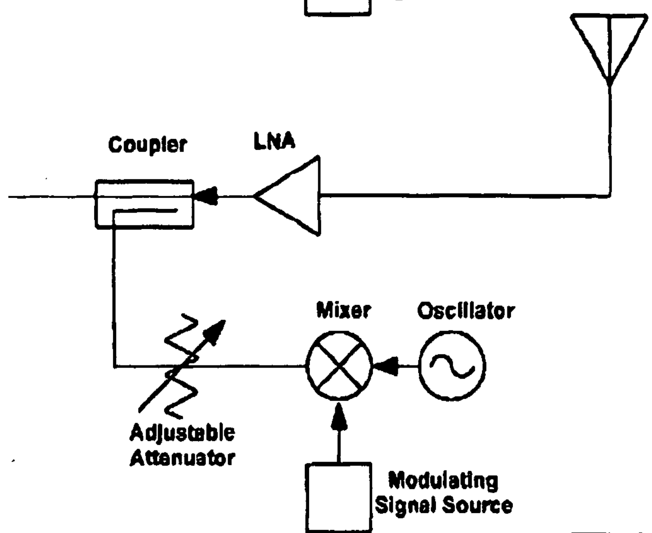

Figure 5
Attenuator Modulated Signal Injection

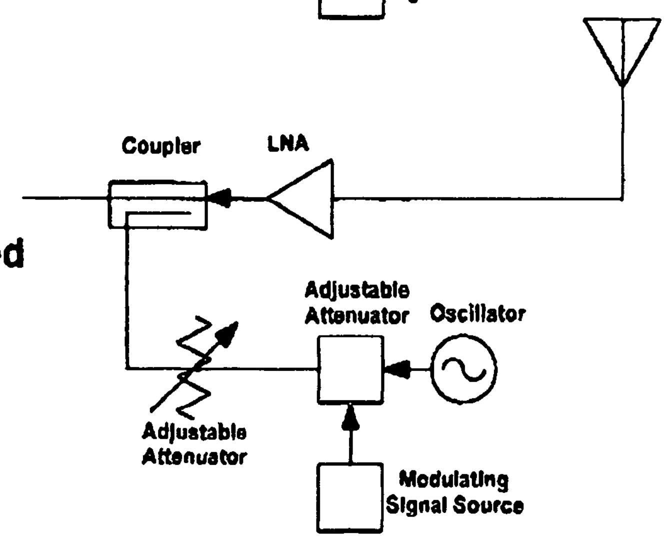

Figure 1
Prior Art

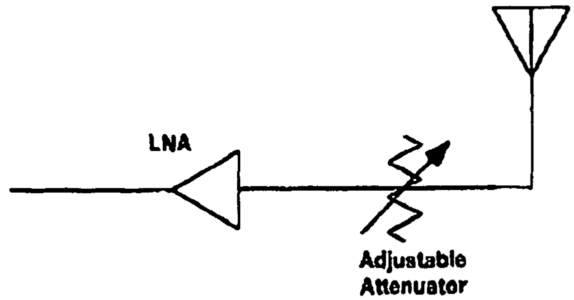

Figure 2
Broadband Noise Injection

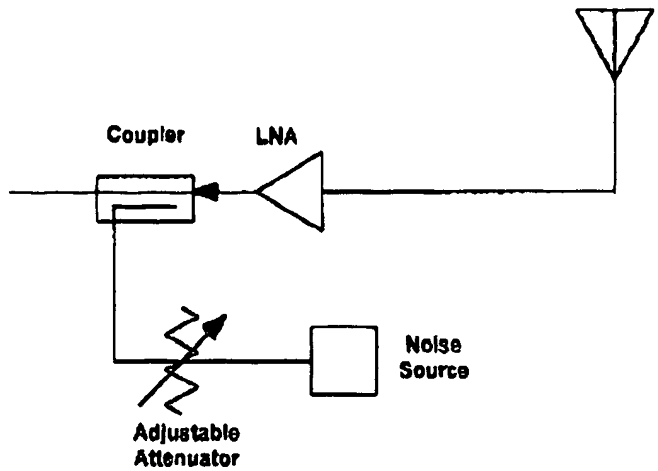

Figure 3
CW Signal Injection